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**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. <b>PCT/AU2003/001249</b>	International Filing Date (day/month/year) <b>24 September 2003</b>	Priority Date (day/month/year) <b>27 September 2002</b>
International Patent Classification (IPC) or national classification and IPC <b>Int. Cl. <sup>7</sup> C05F 9/02, 17/02</b>		
Applicant <b>BIOSYS PTY LTD et al</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand <b>23 April 2004</b>	Date of completion of the report <b>17 January 2005</b>
Name and mailing address of the IPEA/AU <b>AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929</b>	Authorized Officer  <b>KATHERINE MOERMAN</b> Telephone No. (02) 6283 2714

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☒ the international application as originally filed.
- ☐ the description,    pages    , as originally filed,  
                                 pages    , filed with the demand,  
                                 pages    , received on    with the letter of
- ☐ the claims,    pages    , as originally filed,  
                                 pages    , as amended (together with any statement) under Article 19,  
                                 pages    , filed with the demand,  
                                 pages    , received on    with the letter of
- ☐ the drawings,    pages    , as originally filed,  
                                 pages    , filed with the demand,  
                                 pages    , received on    with the letter of
- ☐ the sequence listing part of the description:  
                                 pages    , as originally filed  
                                 pages    , filed with the demand  
                                 pages    , received on    with the letter of

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description,    pages
- ☐ the claims,    Nos.
- ☐ the drawings,    sheets/fig.

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	YES
	Claims 1-16	NO
Inventive step (IS)	Claims	YES
	Claims 1-16	NO
Industrial applicability (IA)	Claims 1-16	YES
	Claims	NO

**2. Citations and explanations (Rule 70.7)**

The present invention relates to waste treatment and provides an apparatus comprising a vertically-oriented central rotating shaft, preferably including rotatable size-reduction blade(s), agitation mechanism(s) and a discharge mechanism.

The following citations are considered in this report.

- D1. EP 676 385
- D2. Derwent Abstract Accession No. 1999-496778/42
- D3. DE 41 37 909
- D4. WO 1999/003799
- D5. Derwent Abstract Accession No. 2001-229183/24
- D6. WO 2000/002832

D1 discloses a method and an apparatus for drying, decomposing and composting organic matter containing a large amount of water. The preferred embodiment comprises a cylindrical garbage treatment tank that includes a vane, rotatable about a central axis to grind the garbage into a "rice porridge state"; an air stone for aeration; and a port in the lower portion of the body for a taking out the treated compost. The apparatus also includes a heat pump and a heat pump controller to control the temperature range between 40° C and 135° C. The citation thus renders claims 1 to 16 not novel.

D2 discloses a refuse treatment tank with vertically-oriented rotating shaft with attached cutter wing that grinds and mixes the organic refuse. The tank is provided with temperature sensors to allow grinding and stirring of the refuse to allow control of fermentation rates through the tank to ensure even fermentation throughout the tank. The citation renders claims 1 to 16 not novel.

D3 discloses a top loading, continuous composting reactor comprising an airtight, insulating housing through which air is drawn upwardly; an airtight, closable inlet; a shredder tool; a discharge system and a compost reservoir. The citation does not disclose or suggest a vertically-oriented central rotating shaft with rotatable size-reduction blade(s) and so if these features are construed to be part of the claims (see note in Box VIII) the claims must be acknowledged as being novel and inventive over the citation.

D4 discloses a composting system incorporating a vertical, insulated composting tower with one or more compartments. The base of each compartment being fitted with a plenum and grate through which air is self induced and output is regularly removed. The method of composting biodegradable waste material utilises a plug flow principle including inducing low air flow rates through a compost pile using column energy. This citation also does not disclose a vertically-oriented central rotating shaft with rotatable size-reduction blade(s) and so the claims must be acknowledged as being novel over the citation.

Continued on supplemental sheet ...

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The claims contain many features that are defined as being "preferably" present and thus appear to be optional, for example the rotatable size reduction blade(s) that may be attached to the vertically-oriented central rotating shaft in claim 1. For the most part these features have been ignored when construing the scope and meaning of the claims. The only exception to this is a presumption that the vertically-oriented central rotating shaft must have some tools attached to it — whether to reduce the size of the waste or to move and agitate the waste — otherwise the shaft would not seem to have a purposeful function.

Most of the claims comprise a number of sentences rather than the more-usual single sentence but this does not appear to affect clarity of these claims.

Claim 1 purports to define an apparatus, a composting system, but also contains method steps: "process conditions within the vessel are controlled via ...". To ensure the claim can be construed as a claim purely to an apparatus rather than as a disguised "method" claim, the word "controlled" has been read as if it were written "controllable".

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

**Continuation of V**

D5 discloses an apparatus comprising a top and bottom fermenter with a grinding transfer apparatus between them. The citation does not disclose the particular combination of features presently claimed and so the present claims must be acknowledged as being novel and inventive over the citation.

D6 discloses a composting apparatus wherein shredded waste is supplied to a space at the bottom of the vessel and the waste is agitated and mixed by wings on a rotating agitator while being lifted to the top of the vessel to be discharged from the top. The citation does not disclose or suggest the presently claimed invention and so the so the present claims must be acknowledged as being novel and inventive over the citation.